MIT's Oldest and
Largest Newspaper

thetech.com

The Tech
Established 1881

Volume 142, Number 30

Thursday, January 12, 2023

WEATHER, p. 2

THU: 44°F | 38°F
Scattered showers.

FRI: 54°F | 36°F
Morning showers.

SAT: 34°F | 26°F
Partly cloudy.

MIT researchers develop AI education program for U.S. Air Force and Defense Department personnel

Brezeal: 'We are trying to deliver some real translational value to the Air Force and the Dept. of Defense. The work is leading to real-world impact for them, and that is really exciting'

By Srinidhi Narayanan
NEWS EDITOR

A team of researchers at MIT Open Learning and the MIT Media Lab developed an academic program to teach U.S. Air Force (USAF) personnel to understand and utilize artificial intelligence technologies.

The work was recently published in an IEEE paper (part of the IEEE Frontiers in Education Conference) titled "Designing and implementing an artificial intelligence (AI) education program for learners with diverse background at scale." According to MIT News, the program was found to be "effective and well-received by employees with diverse backgrounds and professional roles."

The paper was co-authored by Andres F. Salazar-Gomez, Aikaterini Bagiati, Nicholas Minicucci, Kathleen D. Kennedy, Xiaoxue Du, and Cynthia Breazeal PhD '00. Du is a researcher at the Media Lab and Salazar-Gomez, Bagiati, Minicucci, and Kennedy are researchers at Open Learning. Brezeal, who serves as MIT's Dean for Digital Learning, director of MIT RAISE (Responsible AI for Social Empowerment and Education), and head of the Media Lab's Personal Robots research group, was the principal investigator for the study.

Study overview

MIT entered into an agreement with the USAF and the Department of Defense (DoD) to develop the program in January of 2021, with the goal of eventually creating a program that could be used for people of backgrounds ranging from the general public to DoD personnel. The paper focuses on the results of the first pilot; these results will inform additional iterations.

According to the paper, the study analyzed the effectiveness of various aspects of the educational experience — including AI content and curriculum, pedagogical approaches, learning modalities, and technological innovations.

The study attempted to create AI curricula to address six different "learner profiles" and their desired AI skills and competencies; these profiles were Lead AI, learners who would want to eventually make policy decisions about AI tools; Drive AI, learners who would need to ensure that appropriate AI tools and capabilities are developed; Create AI, learners who want to develop AI tools; Embed AI, learners who would establish AI systems and tactics; Facilitate AI, learners who delivered to particular use cases; and Employ AI, learners who would use the AI tools. These profiles were combined into cohorts named Lead-Drive, Create-Embed, and Facilitate-Employ.

The curricula for the three cohorts were developed in the summer of 2020; along with the curricula, a combination of different learning modalities was selected for each cohort, employing self-paced and instructor-led asynchronous and synchronous courses, webinars, and experiential workshops. The curricula consisted of foundational concepts, applications, data visualization, responsible AI, coding, statistics, and AI delivery and enablement, with each cohort's program differing in the depth to which each of these areas was studied.

The data came from several surveys filled out by the learners – USAF and DoD personnel invited to participate in the study. The initial data analysis focused on survey participation, content difficulty, program completion time, pedagogy comfort level, technology usability, interest in the content, and relevance with current USAF/DoD work. The surveys also solicited recommendations for improvement.

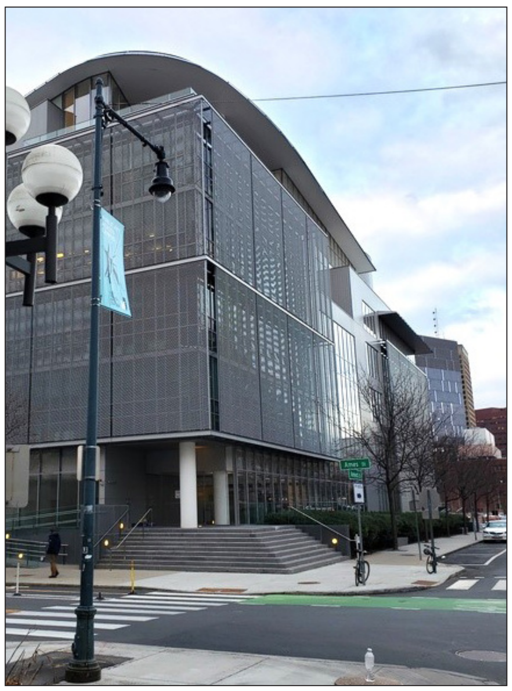
The researchers noted that learner participation in the study decreased with time; 78%, 76%, and 63% of participants completed the program from the Lead-Drive, Created-Embed, and Facilitate-Employ cohorts respectively.

The Lead-Drive cohort responded positively to the experiential, hands-on learning, while members of the Facilitate-Employ cohort responded negatively to the lack of live communication. Members of all cohorts requested more case studies and examples of applications of AI with relevance to the USAF and DoD.

Conclusions

Brezeal said to MIT News that "We are digging deeper into expanding what we think the opportunities for learning are, that are driven by our research questions but also from understanding the science of learning about this kind of scale and complexity of a project."

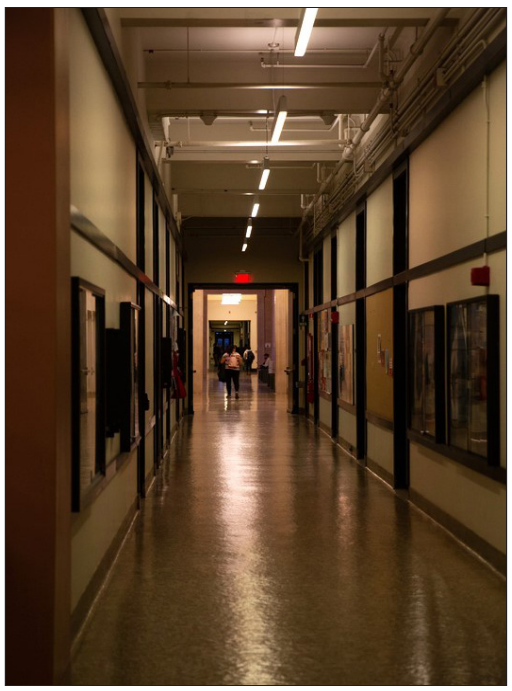
"We are also trying to deliver some real translational value to the Air Force and the Department of Defense. This work is leading to a real-world impact for them, and that is really exciting," Brezeal concluded.



JOANNA LIN—THE TECH

Astronautics professor Dava Newman was named the first woman director of the Media Lab December 2020.

[January 14, 2021]



KEVIN LY—THE TECH

An air of uncertainty continues to loom as positive COVID cases increase across campus during IAP.

[January 6, 2022]

These front-page photos from previous IAP issues bring us back to our first weeks of January over the years and remind us of the growth we've experienced as a community with each passing year.

IN SHORT

Martin Luther King, Jr. Day is Jan. 16.

Students must **pre-register for spring subjects** by Jan. 19 or face an $85 late fee.

Students must **select preferences for spring CI-H/CI-HW subjects** by 5 p.m. Jan. 19.

Spring registration week begins on Jan. 30.

Interested in joining *The Tech*? **Email *join@tech.mit.edu.***

Send news and tips to *news@tech.mit.edu.*

Kornbluth greets MIT community after assuming presidency Jan. 1

President Sally Kornbluth described the excitement of moving into her new role and discussed her goals for the spring semester in an email to the MIT community sent on Jan 4. The email is her first official communication since assuming the presidency on Jan. 1.

Kornbluth thanked the MIT community for their "kindness and enthusiasm." In her email, Kornbluth stated that she will embark on "an intensive listening tour" to familiarize herself with MIT and meet with the "members of this remarkable community." Kornbluth emphasized her openness to community members, encouraging them to share their "reflections" to help reach a collective understanding on how to "make MIT even stronger."

President Kornbluth is MIT's 18th president, succeeding former President L. Rafael Reif. She previously served as Provost at Duke University.

— Alex Tang and Eunice Zhang

TEDxMIT holds Fall conference on Natural and Artificial Intelligence

On Sunday, Dec. 4, TEDxMIT held its biannual event titled "Natural and Artificial Intelligence" in collaboration with the Computer Science & Artificial Intelligence Laboratory; the event was held in MIT's Stata Center. After an a capella performance by the Chorallaries, 14 speakers presented on topics across the field of Intelligence -- neuroscientists explored human psychology, guided by the question 'what defines a "mind"?, and artificial intelligence researchers discussed the "minds" of machines.

The conference was open to the MIT community and the general public.

Fall conference speakers were Alexander Amini SB '17 SM '18 PhD '22, Alay Shah '25, Aude Olivia, James DiCarlo, Yilun Du SB '19 PhD '24, Pulkit Agrawal, Edward Adelson, Vikash Mansingkha PhD '09, Shari Liu, Ramin Hasani, Robert Ajemian, Lucas Igel '22, Patrick Dykstra and Daniela Rus.

TEDxMIT is jointly organized by MIT student organizers and a team from TED.

— Eva Ge

FUN!

Play *The Tech*'s Sudoku and Crossword puzzles and get into a new hobby over IAP.

FUN, p. 3

xkcd
A WEBCOMIC OF ROMANCE, SARCASM, MATH, AND LANGUAGE

THE ART OF THE BRICK

Learn about Nathan Sawaya's LEGO-inspired Newbury St. art exhibition.

ARTS, p. 4

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The Tech (ISSN 0148-9607) is published on Thursdays during the academic year (except during MIT vacations) and monthly during the summer by The Tech, Room W20-483, 84 Massachusetts Avenue, Cambridge, Mass. 02139. Subscriptions are $50.00 per year (third class). **POSTMASTER:** Please send all address changes to our mailing address: The Tech, P.O. Box 397029, Cambridge, Mass. 02139-7029. **TELEPHONE:** Editorial: (617) 253-1541. Business: (617) 258-8324. Facsimile: (617) 258-8226. *Advertising, subscription, and typesetting rates available.* Entire contents **© *2022 The Tech*.** *Printed by Graphic Developments, Inc.*

WEATHER

A rainy end to the first week of IAP

By Yoland Gao

As we close out the first week of IAP, make sure you grab an umbrella on your way to your Thursday and Friday activities! A mid-latitude cyclone is developing along the east coast which will bring both rain and cold air over the next few days. As this cold air mass passes over us, expect temperatures to drop to near freezing again over the weekend.

For weather elsewhere in the United States, the same mid-latitude cyclone is bringing rain and snow all along the east coast over the next few days from Florida to Maine. There is also a marginal to slight chance for tornados, thunderstorms, and strong winds associated with this system for northern Georgia and Alabama. Stay safe and dry everyone!

Extended Forecast

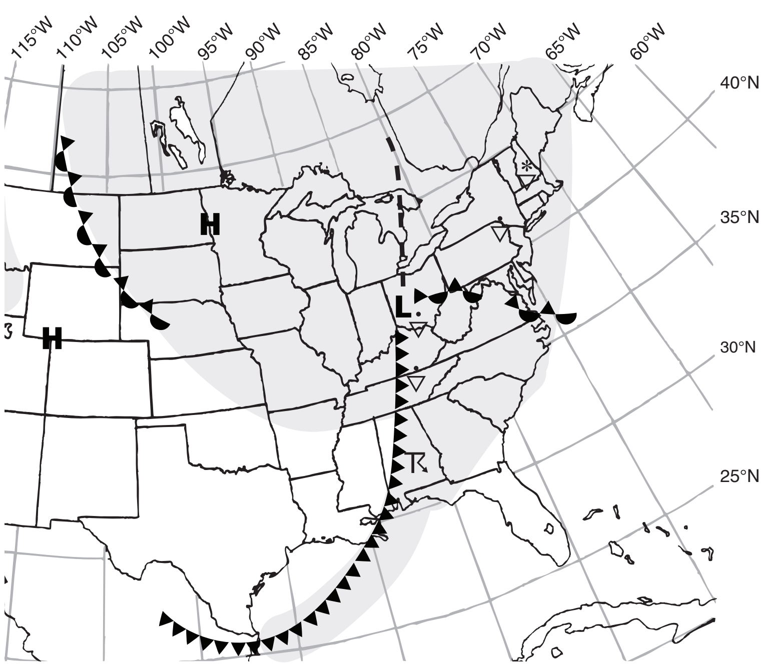
Today: Scattered showers. Noon high around 38°F (3°C). Southeast winds around 10-18 mph.

Tonight: Rain. Overnight high around 44°F (7°C). Winds from the south around 15 mph.

Friday: Morning showers, followed by clouds. High around 54°F (12°C), low around 36°F (2°C). Winds from the southwest 20-25mph.

Saturday: Partly cloudy. High around 34 degrees (1°C), low around 26 degrees (-3°C). Winds from the northwest 8-15mph.

Sunday: Sunny. High around 36°F (2°C), low around 26°F (-3°C). Winds from the north 8-15mph.



Situation for Noon Eastern Time, Thursday, January 12, 2023

Weather Systems	
H	High Pressure
L	Low Pressure
§	Hurricane

Weather Fronts	
▬ ▬ ▬	Trough
◗◗◗◗	Warm Front
▲▲▲▲▲	Cold Front
▲◗▲◗	Stationary Front

Precipitation Symbols	Snow	Rain
Showers	* ▽	• ▽
Light	*	•
Moderate	**	••
Heavy	⁂	∴

Other Symbols	
≡	Fog
☈	Thunderstorm
∞	Haze

Compiled by MIT Meteorology Staff and *The Tech*

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JOIN THE PHOTOGRAPHY DEPARTMENT OF THE TECH!

EMAIL JOIN@TECH.MIT.EDU OR JOIN US FOR DINNER SUNDAY NIGHTS AT 6PM IN OUR OFFICE (W20-483)

Solution to California

from page 3

2	3	8	7	6	9	1	4	5
6	5	1	4	8	3	7	2	9
4	9	7	1	2	5	8	3	6
3	2	4	6	7	1	5	9	8
1	8	5	2	9	4	3	6	7
7	6	9	3	5	8	2	1	4
9	7	3	8	1	6	4	5	2
5	4	2	9	3	7	6	8	1
8	1	6	5	4	2	9	7	3

Solution to LA

from page 3

2	8	9	3	4	1	5	7	6
3	4	1	5	6	7	2	8	9
5	7	6	2	9	8	4	1	3
8	9	4	7	1	6	3	2	5
7	3	5	4	2	9	1	6	8
1	6	2	8	3	5	9	4	7
6	5	3	1	8	2	7	9	4
9	2	7	6	5	4	8	3	1
4	1	8	9	7	3	6	5	2

Solution to Wintry

from page 3

■	T	R	E	E	■	A	P	T	S	■	L	E	S	S
H	A	I	R	Y	■	T	O	O	K	■	A	M	M	O
I	S	S	U	E	■	A	N	T	I	■	W	A	I	L
S	T	E	P	L	A	D	D	E	R	■	N	I	L	E
S	E	N	T	I	N	■	■	M	U	S	C	L	E	S
■	■	■	■	D	A	M	S	■	N	A	H	■	■	■
G	A	R	B	■	R	O	T	S	■	W	A	I	T	S
A	R	I	A	■	M	A	R	E	S	■	I	D	E	A
S	C	O	T	T	■	T	I	L	T	■	R	O	A	M
■	■	■	H	O	E	■	P	L	E	A	■	■	■	■
P	L	A	T	E	A	U	■	■	A	T	L	A	S	T
E	U	R	O	■	S	N	A	C	K	T	A	B	L	E
S	N	O	W	■	E	T	C	H	■	A	D	H	O	C
T	A	M	E	■	L	I	M	E	■	C	L	O	T	H
O	R	A	L	■	S	L	E	W	■	H	E	R	S	■

101 THINGS TO DO BEFORE YOU GRADUATE

21. Buy a mango pomelo sago after class

Join the Arts department at *The Tech* and write restaurant reviews.
(And get reimbursed for your meal!)

Fun From California

Solution, page 2

2			7	6				
6		1			3			
4	9			2				
3	2					5	9	
1		5				3		7
	6	9					1	4
				1			5	2
			9			6		1
				4	2			3

Instructions: Fill in the grid so that each column, row, and 3 by 3 grid contains exactly one of each of the digits 1 through 9.

Livin' it up in LA

Solution, page 2

2								6
		1		6		2		
5			2		8		1	3
	9	4	7					
7			4	2	9			8
					5	9	4	
6	5		1		2			4
		7		5		8		
4								2

Instructions: Fill in the grid so that each column and row contains exactly one of each of the numbers 1–6. Follow the mathematical operations for each box.

Wintry by Billie Truitt

Solution, page 2

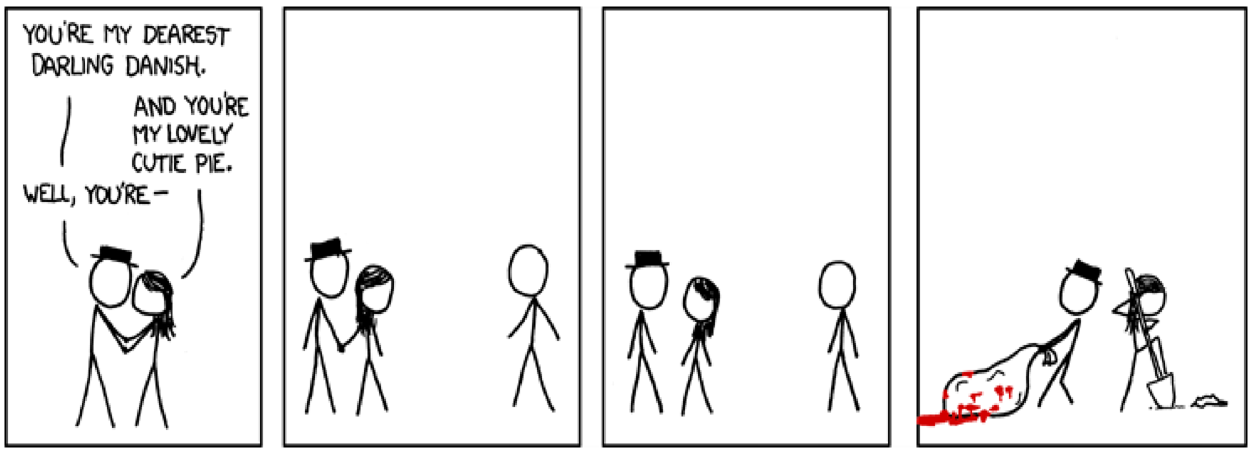
ACROSS
1 Business competitor
6 Memo's "right away" letters
10 Points at a target
14 Indoor sports venue
15 Skin opening
16 "Shoo!"
17 Scam victim
18 Ms. Lane of Superman stories
19 Country in the Andes
20 Overwhelmed with work
23 Not well-lit
24 Makes a mistake
25 Tip of a work boot
27 Judge's order
30 Spectacular failure
32 Quaint school cheer
33 Took a risk
35 Taking little time
38 "Dream on!"
40 Turf dug out by a golf club
42 Give approval for
43 Underneath
45 Showbiz star, briefly
47 Little mischief maker
48 Not as tight
50 "That would be nice"
52 Tailor's implement
54 Insignificant
55 From ancient times
56 Spiky two-tone men's hairstyle
62 State of mind
64 "__ pronounce you . . ."
65 Four letters in "Mississippi"
66 Egg on
67 Send forth, as a sound
68 Gotten out of a chair
69 Fetches
70 Egoist's top priority
71 Ceases

DOWN
1 Hard door knocks
2 Teheran's country
3 Presidential rejection
4 Give a reply
5 With multiple levels, as a cake
6 Superior school grade
7 In the near future
8 Getting very little rain
9 Spanish coin before the Euro
10 Egyptian snake
11 Gingersnap with frosting
12 Santa __ (ship oi 1492)
13 Chopped-down tree's remnant
21 Fearful feeling
22 Betsy of flag fame
26 Rebound of a sound
27 Dull in color
28 Make less difficult
29 Lost one's nervousness
30 High body temperature
31 Much-admired entertainer
34 Sushi grain
36 Lambs' fathers
37 Keyboarding mistake
39 __ processor (kitchen machine)
41 Giggling sound
44 Three Little Pigs' foe
46 Edges of countries
49 Ongoing TV show
51 Watch Fido or Fluffy
52 Claim on some Chinese menus
53 Wed on the run
54 Initials for the weekdays
57 "It's my treat!"
58 Farmer's earth
59 "This __ sudden!"
60 Chick's chirp
61 Payroll IDs
63 AMA members

■	1	2	3	4	■	5	6	7	8	■	9	10	11	12
13					■	14				■	15			
16					■	17				■	18			
19					20					■	21			
22						■	■	23		24				
■	■	■	■	25		26	27	■	28			■	■	■
29	30	31	32	■	33			34	■	35		36	37	38
39				■	40				41	■	42			
43				44	■	45				■	46			
■	■	■	47		48	■	49			50	■	■	■	■
51	52	53				54	■	■	55		56	57	58	59
60				■	61		62	63						
64				■	65				■	66				
67				■	68				■	69				
70				■	71				■	72				■

A WEBCOMIC OF ROMANCE, SARCASM, MATH, AND LANGUAGE
by Randall Munroe

[515] No One Must Know


YOU'RE MY DEAREST DARLING DANISH.
AND YOU'RE MY LOVELY CUTIE PIE.
WELL, YOU'RE—

Or perhaps they knew he was there, and were just trying to torment him first.

'The Art of the Brick' transports us into a whole new art world of LEGO

Imagination is the only limitation

By Vyshnavi Vennelakanti
STAFF WRITER

Art is brought to life through LEGO bricks in Nathan Sawaya's The Art of the Brick. Setting the tone for the rest of the exhibition is Yellow, an original life-size sculpture of a person tearing their chest apart to reveal hundreds of LEGOs falling out. According to Sawaya, Yellow symbolizes "the metamorphosis he has been on his journeys." It is almost like the passion for LEGO resides in Sawaya's heart and flows out when he opens himself up to this world.

The rest of the exhibition consists of artworks that are either original sculptures or replicas of famous paintings in the form of LEGO bricks. Some are made with over 1,600 LEGOs, with one of the largest artworks constructed from 112,300 LEGOs! This showcases the versatility and scale at which LEGOs were used by Sawaya to create this fascinating exhibition. While each and every artwork is a sight to behold, some standouts are the LEGO recreations of The Starry Night (Vincent van Gogh), Mona Lisa (Leonardo da Vinci), San Giorgio Maggiore at Dusk (Claude Monet), and The Arnolfini Portrait (Jan van Eyck). All of them are unique not only in the kind of art they recreate but also in terms of their construction techniques.

The Starry Night has expressive contours and bright colors that reflect van Gogh's intensity and imagination. Sawaya's brick replica combines different tones of grays and blues to emote the intensity of the original with multiple layers of plate added to specific portions of the painting that offer more depth to the LEGO rendering. With the Mona Lisa, Sawaya decided to highly pixelate the LEGO rendition using much larger LEGO bricks. The resulting LEGO Mona Lisa bears striking similarities to the original, and Sawaya is absolutely right in saying that a blurred out image of the painting's brick version could easily be mistaken for a blurred photo of the original!

Another interesting technique Sawaya employs is the intermixing of different colored LEGOs in his rendition of San Giorgio Maggiore At Dusk, which is created using the smallest of LEGOs. The original focuses on the reflection of the bell tower and the cathedral on an island's coast in the surrounding water. While Sawaya's technique makes the rendition unrecognizable when viewed up close, it soon comes into view when viewed from a distance. The brightly colored LEGOs flawlessly portray the splendor of dusk of the original.

One of the most challenging aspects of turning a 2D painting into a 3D sculpture is being imaginative about the background in the painting, hidden by the presence of subjects. Arnolfini Portrait shows a man and a woman standing against a background in an oil painting. Sawaya brought just the two people outside of 2D, rendering them as 3D sculptures in the LEGO rendition of Arnolfini Portrait, which meant he had to formulate what would be in the background since this is not evident from the original. This demands a creative extension from the original while giving additional layers of depth and meaning.

Sawaya also portrays monumental emotions and life choices through his original LEGO artworks. Just like Yellow, Gray portrays Sawaya's journey from a lawyer to a LEGO artist. This sculpture shows a human lurking behind a canvas trying to tear it open, symbolic of Sawaya's inner artist tearing open conventional constraints and taking the leap to pursue his passion for LEGO. One of the largest LEGO artworks is Decisions, which portrays the two most important and contrasting emotional consequences of decisions — hope and despair. This shows a set of LEGO people floating mid-air and multiple hands trying to reach out from the ground to say, "Reach out those hands and you will find hope, rising above ready to lift you up and reassure you that everything will be okay."

Sawaya rightfully proclaims that "Art is not optional." In today's world, where most people are stressed out, art becomes a much needed creative outlet. Sawaya believes that one need not have to choose between engineering and art and that engineering skills could in fact be reflected in the art one makes, in his case, with LEGOs. We see that a lot of thought about the geometry and stability of a construction goes into building a LEGO artwork. The final part of The Art of the Brick exhibition offers a chance for your inner artist to create using LEGOs. There are "Open Play" stations with thousands of LEGOs that you can use to construct your own art, where your imagination is the only limitation.

Overall, I would highly recommend visiting The Art of the Brick LEGO art exhibition in Boston. It takes about an hour to explore the exhibition, which offers an unique perspective into LEGO and how it can bring art to life. We get to interact with some of the LEGO artworks and are even encouraged to have a conversation with spoken or unspoken words with these artworks, which enables us to form a connection with the art and in some sense, with the artist, too. While the standard tickets are $28 and student tickets are $26, you can visit in groups of ten or more and get discounted tickets at $22 per person. Trust me when I say it is worth every penny of the price.

★★★★★

The Art of the Brick

Created by Nathan Sawaya

artofthebrickexhibit.com

343 Newbury St
Boston, MA 02115

Hours:
Sunday–Thursday
10 a.m.–6 p.m.
Friday–Saturday
10 a.m.–8 p.m.

On display until April 23, 2023

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